



Office of Energy Efficiency
and Renewable Energy

Integrated Compressed Natural Gas Storage System Developed

Background

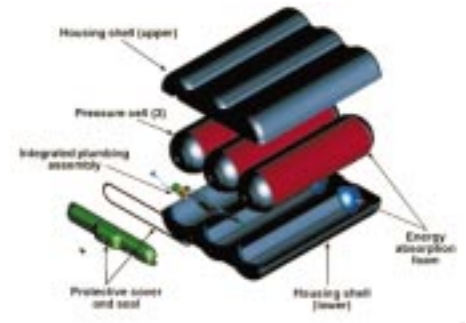
Compressed natural gas (CNG) has less energy content per unit volume than gasoline and must be stored under pressure. Before CNG vehicles can become a truly viable transportation option, onboard vehicle CNG storage technology must be developed with enough capacity to permit adequate driving ranges and enough structural integrity to withstand vehicle collisions. The U.S. Department of Energy is supporting the development of CNG storage systems that are much less expensive than previous versions, can provide acceptable vehicle range (i.e., double the previous CNG range), can withstand vehicle crashes without leakage, and overall, are suitable for automotive applications.

Accomplishments

- ◆ An integrated storage system (ISS) for CNG has been developed that meets the requirements for adequate storage capacity and fuel containment during collisions by using tanks made of composite materials placed within a high-strength fiberglass shell surrounded by high-impact foam. Johns Hopkins University and Lincoln Composites developed the technology base for the ISS.
- ◆ Prototype ISS units were fabricated, extensively safety-tested, and certified to comply with relevant federal motor vehicle safety standards.

Benefits

- ◆ The ISS technology can reduce impediments to widespread use of CNG in the nation's automotive fleet.
- ◆ The ISS could double the range of typical CNG vehicles while maintaining adequate trunk space.
- ◆ The ISS could help reduce dependence on imported oil and reduce generation of greenhouse gases.



*Integrated Storage System for
Compressed Natural Gas*

Future Activities

- ◆ Reduce ISS carbon content and enhance the resin toughness to ensure commercial production viability.
- ◆ Conduct a series of rear-end barrier collisions on vehicles in which an ISS has been integrated.

Partners in Success

DaimlerChrysler Corporation
Johns Hopkins University
Lincoln Composites

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